

IN THE CLAIMS:

Amend claims 36, 38, 39, 41-43, 45, 47, 49, 51 and 53-68 as shown in the following listing of claims, which replaces all previous versions and listings of claims in this application.

1. - 35. (canceled).

36. (currently amended) An information reproducing apparatus comprising:

a light source for generating linearly polarized light;

a medium having an information unit field and a plurality of linear marks disposed in the information unit field in overlapping relation to one another and extending in different directions from one another;

an optical head disposed between the light source and the medium, the optical head having a fine aperture;

polarized light control means for controlling the linearly polarized light generated by the light source to pass through the fine aperture of the optical head to generate near-field light having a preselected polarization direction and to irradiate the linear marks in the information unit field of the medium with the near-field light so that the preselected polarization direction of the near-field light is

orthogonal to a longitudinal axis of each of the linear marks;  
and

a detector for detecting light scattered by the  
linear mark irradiated with the near-field ~~light~~ light; and  
a signal processing circuit that processes a signal  
from the detector corresponding to the detected scattered  
light, the signal processing circuit having a control circuit  
having a head drive circuit for carrying out access/tracking  
control of the optical head and a read data output control  
circuit for outputting read data.

37. (canceled).

38. (currently amended) An information reproducing  
apparatus according to claim 37, ~~wherein 36; wherein~~ the  
signal processing means ~~includes means for acquiring circuit~~  
acquires data in accordance with an intensity of the signal  
from the detector corresponding to the detected scattered  
light.

39. (currently amended) An information reproducing  
apparatus according to claim 36; wherein the plurality of  
linear marks comprise a plurality of linear data marks and a  
plurality of tracking marks disposed in overlapping relation  
to one another the plurality of linear data marks; and wherein  
the signal processing circuit has a difference circuit that

calculates a difference of signals for tracking and a read data signal processing circuit for processing a signal for data access, the difference circuit providing to the head drive circuit signals that control a head drive actuator that drives the optical head.

40. (canceled).

41. (currently amended) An information reproducing apparatus comprising:

a light source for generating linearly polarized light;

a medium having an information unit field and a plurality of linear marks disposed in the information unit field in overlapping relation to one another and extending in different directions from one another;

an optical head disposed between the light source and the medium, the optical head having a fine aperture;

polarized light control means for controlling the linearly polarized light generated by the light source to pass through the fine aperture of the optical head to generate near-field light and to irradiate the linear marks disposed in the information unit field of the medium with the near-field light, and for controlling a direction of polarization of the near-field light so that the direction of polarization of the

near-field light irradiated on the linear marks is orthogonal to a longitudinal axis of each of the linear marks; and

a detector for detecting light scattered by the linear marks irradiated with the near-field ~~light~~ light; and

a signal processing circuit that processes a signal from the detector corresponding to the detected scattered light, the signal processing circuit having a control circuit having a head drive circuit for carrying out access/tracking control of the optical head and a read data output control circuit for outputting read data.

42. (currently amended) An information reproducing apparatus according to claim 41; ~~further comprising wherein the signal processing means for processing a signal from the detector corresponding to the detected scattered light and for acquiring~~ circuit acquires multiple value data from the signal.

43. (currently amended) An information reproducing apparatus according to claim 41; wherein the plurality of linear marks comprise linear data marks and a plurality of tracking marks disposed in overlapping relation to one another the plurality of linear data marks; and wherein the signal processing circuit has a difference circuit that calculates a difference of signals for tracking and a read data signal

processing circuit for processing a signal for data access,  
the difference circuit providing to the head drive circuit  
signals that control a head drive actuator that drives the  
optical head.

44. (canceled).

45. (currently amended) An information reproducing apparatus comprising:

a medium having a plurality of information unit fields and a plurality of linear marks disposed in each of the information unit fields in overlapping relation to one another and extending in different directions from one another;

an optical head disposed over the medium and having a fine aperture; and

light generating means for generating linearly polarized light and directing the linearly polarized light through the fine aperture of the optical head to generate near-field light and to irradiate at least one of the linear marks in the information unit fields of the medium with the near-field light;

control means for controlling a direction of polarization of the near-field light so that the direction of polarization of the near-field light irradiated on the at least one linear mark is orthogonal to a longitudinal axis of the at least one linear mark; and

detecting means for detecting light scattered by the linear mark irradiated with the near-field ~~light~~ light; and signal processing means for processing a signal from the detecting means corresponding to the detected scattered light, the signal processing means comprising a control circuit having a head drive circuit for carrying out access/tracking control of the optical head and a read data output control circuit for outputting read data.

46. (canceled)

47. (currently amended) An information reproducing apparatus according to claim 45; wherein the plurality of linear marks comprise a plurality of linear data marks and a plurality of tracking marks disposed in overlapping relation to one another the plurality of linear data marks; and wherein the signal processing means further comprises a difference circuit that calculates a difference of signals for tracking and a read data signal processing circuit for processing a signal for data access, the difference circuit providing to the head drive circuit signals that control a head drive actuator that drives the optical head.

48. (canceled).

49. (currently amended) An information reproducing method, comprising the steps of:

providing a medium having a plurality of information unit fields and a plurality of linear marks disposed in each of the unit fields in overlapping relation to one another and extending in different directions from one another;

generating near-field light by directing linearly polarized light through a fine aperture of an optical head;

irradiating at least one of the linear marks in the respective information unit field of the medium with the near-field light while controlling a direction of polarization of the near-field light so that the direction of polarization of the near-field light irradiated on the at least one linear mark is orthogonal to a longitudinal axis of the at least one linear mark; ~~and~~

detecting light scattered by the linear mark irradiated with the near-field ~~light~~; light; and

processing a signal corresponding to the detected scattered light including carrying out access/tracking control of the optical head and outputting read data.

50. (canceled)

51. (currently amended) An information reproducing method according to claim 49; wherein the plurality of linear marks comprise a plurality of linear data marks and a plurality of tracking marks disposed in overlapping relation to one another the plurality of linear data marks; and further comprising the steps of calculating a difference of signals for tracking and processing a signal for data access, and providing to the head drive circuit the processed signal to control a head drive actuator that drives the optical head.

52. (canceled).

53. (currently amended) An information reproducing apparatus according to claim 36; wherein each of the linear marks comprises a projection having a linear edge; wherein the near-field light irradiates each projection so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detector detects light scattered by the linear edge of each projection irradiated with near-field light.

54. (currently amended) An information reproducing apparatus according to claim 36; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the near-field light irradiates each groove so



that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detector detects light scattered by the linear edge of each groove irradiated with near-field light.

55. (currently amended) An information reproducing apparatus according to claim 36; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical properties property from that of the medium; wherein the near-field light irradiates each substance so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detector detects light scattered by the linear interface of each substance irradiated with near-field light.

56. (currently amended) An information reproducing apparatus according to claim 55; wherein the different optical properties are property is a different refractive indices index.

57. (currently amended) An information reproducing apparatus according to claim 41; wherein each of the linear marks comprises a projection having a linear edge; wherein the near-field light irradiates each projection so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detector detects light scattered by the linear edge of each projection irradiated with near-field light.

58. (currently amended) An information reproducing apparatus according to claim 41; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the near-field light irradiates each groove so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detector detects light scattered by the linear edge of each groove irradiated with near-field light.

59. (currently amended) An information reproducing apparatus according to claim 41; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical ~~properties~~ property from

that of the medium; wherein the near-field light irradiates each substance so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detector detects light scattered by the linear interface of each substance irradiated with near-field light.

60. (currently amended) An information reproducing apparatus according to claim 59; wherein the different optical ~~properties are~~ property is a different refractive indices index.

61. (currently amended) An information reproducing apparatus according to claim 45; wherein each of the linear marks comprises a projection having a linear edge; wherein the near-field light irradiates each projection so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detecting means detects light scattered by the linear edge of each projection irradiated with near-field light.

62. (currently amended) An information reproducing apparatus according to claim 45; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the near-field light irradiates each groove so

that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detecting means detects light scattered by the linear edge of each groove irradiated with near-field light.

63. (currently amended) An information reproducing apparatus according to claim 45; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical ~~properties~~ property from that of the medium; wherein the near-field light irradiates each substance so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detecting means detects light scattered by the linear interface of each substance irradiated with near-field light.

64. (currently amended) An information reproducing apparatus according to claim 63; wherein the different optical ~~properties are~~ property is a different refractive indices index.

65. (currently amended) An information reproducing method according to claim 49; wherein each of the linear marks comprises a projection having a linear edge; wherein the irradiating step comprises irradiating each of the projections with near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each projection; and wherein the detecting step comprises detecting light scattered by the linear edge of each projection irradiated with near-field light.

66. (currently amended) An information reproducing method according to claim 49; wherein each of the linear marks comprises a groove having a linear edge formed in the medium; wherein the irradiating step comprises irradiating each of the grooves with near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear edge of each groove; and wherein the detecting step comprises detecting light scattered by the linear edge of each groove irradiated with near-field light.

67. (currently amended) An information reproducing method according to claim 49; wherein each of the linear marks comprises a plurality of substances having a linear interface and formed in a planar surface of the medium, the substances having a different optical properties property from that of the medium; wherein the irradiating step comprises irradiating each of the substances with near-field light so that the preselected polarization direction of the near-field light is orthogonal to a longitudinal axis of the linear interface of each substance; and wherein the detecting step comprises detecting light scattered by the linear interface of each substance irradiated with near-field light.

68. (currently amended) An information reproducing method according to claim 67; wherein the different optical properties are property is a different refractive indices index.